AMENDMENTS TO THE CLAIMS

1. (Previously presented) An optical device for giving attenuation amount, comprising:

a substrate;

an optical circuit having a core and a cladding, the optical circuit being formed on the substrate and divided into two portions such that the core being divided into two core elements by a groove that traverses the core;

an optical element having an optical attenuating function, the optical element being movably disposed inside the groove at a location between the core elements; and

an actuating means, comprising a comb-shaped electrode, for actuating said optical element, wherein one of the optical circuit portions includes a Mach-Zehnder interferometer having arms, and at least one of the arms there is provided a variable optical attenuation means that produces thermal phase shift.

2. (Original) An optical device according to claim 1, wherein the optical element has, on its light-receiving surface that receives signal light from the core, optical attenuation elements that exhibit discretely differing optical attenuation amounts.

3. (Cancelled)

4. (Original) An optical device according to claim 2, wherein one of the optical circuit portions includes a Mach-Zehnder interferometer having arms, and at least at one of the arms there is provided a variable optical attenuation means that produces thermal phase shift, and optical attenuation is made continuously variable over an entire operating range by interpolating a continuous optical attenuation amount, which is produced by thermal phase shift, in a discrete optical attenuation amount, which is produced by moving the optical element along the groove.

5. (Currently amended) An optical device according to claim 1, wherein the actuating means comprises:

a first comb-shaped electrode disposed ~~on a surface of the substrate~~ such that the comb teeth thereof are parallel to the groove;

a second comb-shaped electrode disposed to oppose the first comb-shaped electrode; and

a comb-shaped floating electrode disposed between the first and second comb-shaped electrodes, a portion of the floating electrode being away from the surface of the substrate so as to support the optical element.

6. (Original) An optical device according to Claim 1, wherein the optical attenuating function of the optical element is such as to cause the optical element to essentially perform a intercepting operation against signal light.

7. (Original) An optical device according to claim 6, wherein a light-receiving surface of the optical element that receives the signal light has a bumpy form such that the signal light is not reflected in the incident direction.

8. (Original) An optical device according to Claim 6, wherein reflectivity of a light-receiving surface of the optical element that receives the signal light is equal to or less than 20 dB.

9. (Previously presented) An optical device according to any one of the claims 1, 2 and 4 to 8, wherein polarization dependence loss of the optical device is equal to or less than 0.2 dB regardless of the given optical attenuation amount.

10. (Original) An optical device according to Claim 9, wherein a maximum value of the optical attenuation amount is equal to or greater than 40 dB.

11. (Previously presented) An optical device for giving attenuation amount, comprising:

a substrate;

an optical circuit having a core and a cladding, the optical circuit being formed on the substrate and divided into two portions such that the core being divided into two core elements by a groove that traverses the core;

an optical element having an optical attenuating function, the optical element being movably disposed inside the groove at a location between the core elements; and

an actuating means, comprising a comb-shaped electrode, for actuating said optical element, wherein:

the optical element has, on its light-receiving surface that receives signal light from the core, optical attenuation elements that exhibit discretely differing optical attenuation amounts; and

one of the optical circuit portions includes a Mach-Zehnder interferometer having arms, and at least at one of the arms there is provided a variable optical attenuation means that produces thermal phase shift, and optical attenuation is made continuously variable over an entire operating range by interpolating a continuous optical attenuation amount, which is produced by thermal phase shift, in a discrete optical attenuation amount, which is produced by moving the optical element along the groove.

12. (Currently amended) An optical device for giving attenuation amount, comprising:

a substrate;

an optical circuit having a core and a cladding, the optical circuit being formed on the substrate and divided into two portions such that the core being divided into two core elements by a groove that traverses the core;

an optical element having an optical attenuating function, the optical element being movably disposed inside the groove at a location between the core elements; and

an actuating means, comprising a comb-shaped electrode, for actuating said optical element, wherein the actuating means comprises:

a first comb-shaped electrode disposed ~~on a surface of the substrate~~ such that the comb teeth thereof are parallel to the groove;

a second comb-shaped electrode disposed to oppose the first comb-shaped electrode; and

a comb-shaped floating electrode disposed between the first and second comb-shaped electrodes, a portion of the floating electrode being away from the surface of the substrate so as to support the optical element.